

Name: Key

Function Notation and Operations Worksheet

Use the functions below to answer the given questions:

$$f(x) = 3x - 4$$

$$g(x) = 2x^2 + 5$$

$$h(x) = 8 - 3x$$

$$p(x) = x^2 - 2x$$

FUNCTION NOTATION:

$$\begin{aligned} 1) \quad f(-3) &= 3(-3) - 4 \\ &= -9 - 4 \\ &= -13 \end{aligned}$$

$$\begin{aligned} 4) \quad g(-1) &= 2(-1)^2 + 5 \\ &= 2(1) + 5 \\ &= 7 \end{aligned}$$

$$\begin{aligned} 7) \quad p(5) &= (5)^2 - 2(5) \\ &= 25 - 10 \\ &= 15 \end{aligned}$$

$$\begin{aligned} 2) \quad f(6) &= 3(6) - 4 \\ &= 18 - 4 \\ &= 14 \end{aligned}$$

$$\begin{aligned} 5) \quad g(4) &= 2(4)^2 + 5 \\ &= 2(16) + 5 \\ &= 37 \end{aligned}$$

$$\begin{aligned} 8) \quad h(-2) &= 8 - 3(-2) \\ &= 8 + 6 \\ &= 14 \end{aligned}$$

$$\begin{aligned} 3) \quad f(x+2) \\ &= 3(x+2) - 4 \\ &= 3x + 6 - 4 \\ &= 3x + 2 \end{aligned}$$

$$\begin{aligned} 6) \quad p(-2) &= (-2)^2 - 2(-2) \\ &= 4 + 4 \\ &= 8 \end{aligned}$$

$$\begin{aligned} 9) \quad h(5x-3) \\ &= 8 - 3(5x-3) \\ &= 8 - 15x + 9 \\ &= -15x + 17 \end{aligned}$$

FUNCTION OPERATIONS:

$$\begin{aligned} 10) \quad (h+g)(3) &= h(3) + g(3) \\ &= 8 - 3(3) + 2(3)^2 + 5 \\ &= 8 - 9 + 2(9) + 5 \\ &= -1 + 18 + 5 = \boxed{22} \end{aligned}$$

$$\begin{aligned} 11) \quad (f-p)(-1) &= f(-1) - p(-1) \\ &= 3(-1) - 4 - ((-1)^2 - 2(-1)) \\ &= -3 - 4 - (1 + 2) \\ &= -7 - (3) \\ &= -10 \end{aligned}$$

$$\begin{aligned} 12) \quad f(g(x)) \\ &= 3(2x^2 + 5) - 4 \\ &= 6x^2 + 15 - 4 \\ &= 6x^2 + 11 \end{aligned}$$

$$\begin{aligned} 13) \quad h(p(x)) &= 8 - 3(x^2 - 2x) \\ &= 8 - 3x^2 + 6x \\ &= -3x^2 + 6x + 8 \end{aligned}$$

$$\begin{aligned} 14) \quad (p+g)(x) &= p(x) + g(x) \\ &= x^2 - 2x + 2x^2 + 5 \\ &= 3x^2 - 2x + 5 \end{aligned}$$

$$\begin{aligned} 15) \quad (f-h)(x) &= f(x) - h(x) \\ &= 3x - 4 - (8 - 3x) \\ &= 3x - 4 - 8 + 3x \\ &= 6x - 12 \end{aligned}$$

$$\begin{aligned} 16) \quad h(g(2)) \\ g(2) &= 2(2)^2 + 5 \\ &= 2(4) + 5 \\ &= 8 + 5 \\ &= 13 \end{aligned}$$

$$\begin{aligned} 17) \quad g(p(-1)) \\ p(-1) &= (-1)^2 - 2(-1) \\ &= 1 + 2 \\ &= 3 \end{aligned}$$

$$\begin{aligned} h(13) &= 8 - 3(13) \\ &= 8 - 39 \\ &= -31 \end{aligned}$$

$$\begin{aligned} g(3) &= 2(3)^2 + 5 \\ &= 2(9) + 5 \\ &= 18 + 5 \\ &= 23 \end{aligned}$$